

Remarks

Three typographical errors were corrected above in the Specification. In summary, those corrections are:

Page 3, line 32, "Ä" was changed to – Δ – to agree with Fig. 1B;

Page 9, line 20, the word – is – was inserted; and

Page 11, line 28, "(Fig. 9B)" was corrected to – (Fig. 10B) –.

Claims 1 and 16 were rejected by the Examiner under 35 USC §112 as being indefinite in step d) of each in which step d) refers back to step "d)". Each of claims 1 and 16 have been amended so that step d) refers back to step c).

Claims 11, 13 and 14 were rejected by the Examiner under 35 USC §102(a) as being anticipated by Brown. Of these three claims, claims 11 and 14 are independent claims and claim 13 is dependent from claim 11.

The teaching of Brown is of a system that can be used with any alignment mark, free-form or geometrical shapes with or without straight lines, that a user might want to use on their substrate. Some example alignment marks that a user could use with the Brown system are an ameba shape with many different shaped arms going in different directions, two halves of an unevenly broken heart, or a square. This is possible with the Brown system because the first step performed by Brown is to image the alignment mark on the user's substrate to "learn" the alignment mark that will be the basis for the later comparisons. The actual "learned" mark image is stored in memory for later comparison with the alignment marks on different layers or levels of a substrate. Brown does not include a database of shapes from which a mark maybe selected or built. Brown simply accepts whatever the user provides, images it and stores that image for later use.

In the present invention a virtual alignment pattern is generated from a database of primitive shapes with that virtual alignment pattern stored in a memory for later comparison with actual alignment patterns on two levels of a substrate with the actual alignment pattern based on the virtual alignment pattern stored in memory. The virtual alignment pattern is generated from a database, with what is stored in memory being an electronic representation of the generated pattern. The virtual alignment pattern in memory is not created by imaging a hard copy of the pattern. The range of alignment patterns that can be used with the present invention is therefore quite limited in comparison to the endless possible marks that can be used with Brown's system and method.

To clarify the distinctions of the present invention from Brown, steps b) and c) of claim 11 has been amended as follows:

- b) comparing first and second images of actual alignment patterns based on said virtual alignment pattern formed on first and second levels of a substrate to said virtual alignment pattern; and
- c) computing an offset between the first and second images of the actual alignment patterns.

Claim 11 as so amended is clearly distinguishable from Brown.

Claims 14 has been similarly amended.

Since claim 11 is distinguishable from Brown, and claim 13 that is dependent from claim 11 is also distinguishable from Brown by virtue of that dependence.

Claims 2-7, 10, 12 and 15 were objected to by the Examiner as being dependent from a rejected claim. Claims 2-7 and 10 are dependent from claim 1; claim 12 is dependent from claim 11; and claim 15 is dependent from claim 14.

Claim 1 has been amended to overcome the §112 rejection and is now in condition for allowance. With that being the only rejection of claim 1, objected to claims 2-7 and 10 that are dependent from claim 1 are therefore now in condition for allowance since claim 1 is in condition for allowance.

Objected to claim 12 is also in condition for allowance given the amendment of claim 11 from which it depends, as is claim 15 which is dependent from amended claim 14.

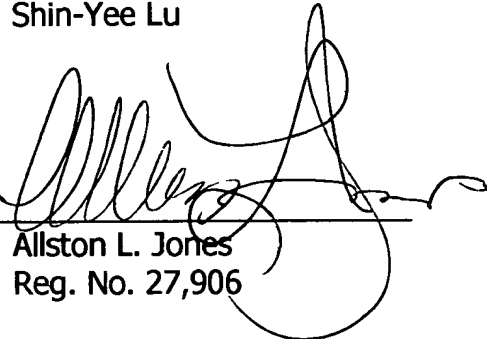
Additionally, claim 3 has been amended to insert the omitted word "pattern".

All claims are now in condition for allowance.

Favorable action is respectfully requested.

Respectfully submitted,
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by



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